REMARKS:

The claims in the application are 1-36.

Favorable consideration of the application as amended is respectfully requested.

The claims have been amended to eliminate all multiple dependencies. The specification has also been amended for formal reasons (a marked-up copy is enclosed).

Early favorable action is earnestly solicited.

Respectfully submitted,

George M. Kaplan
Registration No.: 28,375
Attorney for Applicant(s)

DILWORTH & BARRESE, LLP
333 Earle Ovington Blvd.
Uniondale, New York 11553
(516)228-8484

This object is satisfied by an optical feature [having the features of claim 1], a data carrier having the features ~~of claim 36~~, a method [having the features of claim 17] or a method [having the features of claim 22]. Advantageous embodiments and aspects are ~~the subject of the dependent claims~~.

An optical feature of the invention comprises an at least dual-channel hologram. This hologram serves the holographic reconstruction of different images from different directions of gaze, with a dual-channel hologram making two different directions of gaze available. The hologram has regions which reconstruct on respective direction of gaze under incidence of light. Each direction of gaze, i.e. each channel, has a region associated with it, with a region serving the reconstruction of an image from one direction of gaze being able to be made up of a plurality of parts distributed over the hologram. These parts can be lines which are preferably arranged alternately for the different regions. Such an arrangement has the advantage that it can be manufactured very easily with the aid of a line mask. The individual regions for the reconstruction of a in image in one direction of gaze can equally also be optionally randomly distributed over the recording material.

The regions in turn comprise sub-regions which do not participate in the image reconstruction.

Such an optical feature allows different views if it is viewed from different directions of gaze, for example from two different directions of gaze with a dual-channel hologram. A tilt effect can be realised in this way. The design in a holographic form also makes forgery significantly more difficult. A holographic structure is very difficult to imitate in a photocopying technique. On the other hand, no additional optical structures are required to allow the observation of the different views from different directions. Compatibility with

3. An optical feature in accordance with ~~either of~~ claim~~s~~ 1 ~~or 2~~, wherein the sub-regions comprise recesses in the regions (21, 22) reconstructing the respective image under incident light.

4. An optical feature in accordance with ~~any of~~ claim~~s~~ 1 ~~to 3~~, wherein the sub-regions comprise parts of the respective region (21, 22), to which the relevant sub-region belongs, whose optical properties have later been modified by a laser.

5. An optical feature in accordance with ~~any of~~ claim~~s~~ 1 ~~to 4~~, wherein the at least one hologram (1) holographically reconstructs diffuse object beams from different directions.

6. An optical feature in accordance with ~~any of~~ claim~~s~~ 1 ~~to 5~~, wherein the at least one hologram (1) holographically reconstructs shaped object beams from different directions.

7. An optical feature in accordance with ~~any of~~ claim~~s~~ 1 ~~to 6,~~ wherein the at least one hologram (1) comprises an embossed hologram structure.

8. An optical feature in accordance with ~~any of~~ claim~~s~~ 1 ~~to 7~~, wherein the regions (21, 22) for the reconstruction in different directions of gaze each comprise colour-separated rainbow holograms.

9. An optical feature in accordance with ~~any of~~ claim~~s~~ 1 ~~to 8~~, wherein the regions (21, 22) comprise respective, preferably multi-colour, volume holograms for reconstruction in different directions of gaze.

10. An optical feature in accordance with ~~any of~~ claims 1 ~~to 9~~, wherein the regions (21, 22) comprise respectively a plurality of linear, preferably alternatingly arranged parts, for the reconstruction in different directions of gaze.

11. An optical feature in accordance with ~~any of~~ claims 1 ~~to 10~~, wherein the regions each comprise a plurality of parts having at least one pixel.

12. An optical feature in accordance with claim 11, wherein the regions for the holographic reconstruction in different directions of gaze each contain a plurality of parts having at least one pixel per primary colour.

13. An optical feature in accordance with ~~any of~~ claims 1 ~~to 12~~, wherein the at least one hologram (1) is designed in a reflecting manner on the rear side and preferably comprises a rear metallic coating.

14. An optical feature in accordance with ~~any of~~ claims 1 ~~to 13~~, wherein the sub-regions comprise blackenings in the regions (21, 22) reconstructing the respective image under incident light.

15. An optical feature in accordance with ~~any of~~ claims 1 ~~to 14~~, wherein a dual-channel hologram for the holographic reconstruction of two images from different directions of gaze is used which is designed such that a stereoscopic image is produced on observation.

16. An optical feature in accordance with ~~any of~~ claims 1 ~~to 15~~, wherein the at least one hologram (1) is arranged in front of a dark background.

17. A method for the production of an optical feature, in particular for documents of value, having the following steps:

a) manufacture of an at least dual-channel hologram (1), with the information for the individual channels being recorded in different regions of the hologram (1);

b1) modification of the optical properties of a sub-region of a region for the reconstruction in a direction of gaze in the form of a pattern;

b2) repetition of step b1) for each channel with optionally different patterns.

18. A method in accordance with claim 17, wherein in step a) the different regions (21, 22) for the recording for different channels are selected in the recording of the hologram (1) by different masking of the holographic recording material (1) with a mask (3) in the object light beam or in the reference light beam.

19. A method in accordance with claim 18, wherein a line mask (3) is used for the masking.

20. A method in accordance with claim 19, wherein the line mask (3) is displaced to change the regions (21, 22) for the recording of different channels.

21. A method in accordance with ~~any of~~ claims 17 ~~to 20~~, wherein

a1) first, a first channel of the hologram (1) is recorded and then step (b1) is carried out for this channel; and

a2) step (a1) is repeated for the other channels.

22. A method for the production of an optical feature, in particular for documents of value, having the following steps:

α1) manufacture of a first holographic structure which reconstructs a first channel of an at least dual-channel hologram (1) under incident light;

α2) modification of the optical properties of a sub-region of the first holographic structure in the form of a first pattern;

β1) manufacture of a second holographic structure which reconstructs a second channel of the at least dual-channel hologram (1) under incident light on one or more part regions of an otherwise transparent carrier material;

β2) modification of the optical properties of a sub-region of the second holographic structure in the form of a second pattern;

γ) application of the carrier material of the second holographic structure on the first holographic structure.

23. A method in accordance with claim 22, wherein the steps α2) or β2) are carried out before the step γ).

24. A method in accordance with ~~either of~~ claim~~s~~ 22 ~~or 23~~, wherein the first hologram structure is applied over the whole area.

25. A method in accordance with a~~ny of~~ claim~~s~~ 22 t~~o 24~~, wherein the holographic structures are formed as embossed holographic structures.

26. A method in accordance with claim 25, wherein the manufacturing steps for the embossed hologram structure comprise a metallising step and, during step β1), first a metallised embossed hologram structure is manufactured for the reconstruction of the second channel and then a part of the metallisation is removed so that the second channel is only reconstructed from the remaining part of the second hologram structure and the part from which the metallisation was removed is transparent.

27. A method in accordance with claim 26, wherein step β2) is carried out before the part removal of the metallisation.

28. A method in accordance with ~~any of~~ claim~~s~~ 22 ~~to 27~~, wherein steps (β1), (β2) and (γ) are repeated for each further channel for the manufacture of a more than dual-channel hologram.

29. A method in accordance with ~~any of~~ claim~~s~~ 17 ~~to 28~~, wherein the sub-regions of the individual regions (21, 22) to be modified in their optical properties are modified in the optical properties by a laser (31, 33).

30. A method in accordance with claim 29, wherein the sub-regions of the regions (21, 22) holographically reconstructing an image are destroyed or blackened at least in part with the aid of the laser.

31. A method in accordance with ~~any of~~ claims 17 ~~to 30~~, wherein the sub-regions, whose optical properties are to be modified, of the individual regions (21, 22) are printed over so that they can no longer take part in the holographic reconstruction.

32. A method in accordance with ~~any of~~ claims 17 ~~to 31~~, wherein the hologram (1) is fastened to a dark surface.

33. A method in accordance with ~~any of~~ claims 17 ~~to 32~~, wherein the hologram (1) is fastened to a reflecting hologram.

34. A method in accordance with ~~any of~~ claims 17 ~~to 33~~, wherein the hologram (1) is coated in a reflecting, preferably metallic, manner on the rear side.

35. An optical feature in accordance with ~~any of~~ claims 1 ~~to 15~~, wherein the at least one hologram (1) is arranged in front of a reflecting background.

36. A data carrier, in particular a document of value, having at least one optical feature in accordance with ~~any of~~ claims 1 ~~to 16 or in accordance with claim 35~~.